Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Facilitating the Deployment of	)	PS Docket No. 11-153
Text-to-911 and Other Next Generation	)	
911 Applications	)	
	)	
Framework for Next Generation	)	PS Docket No. 10-255
911 Deployment	)	

REPLY COMMENTS OF INTRADO INC.

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February 9, 2012

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Intrado Inc. (Intrado) respectfully submits its reply comments to the Notice of Proposed Rulemaking issued by the Federal Communications Commission (FCC or Commission) in the above referenced proceeding.[1]

I. INTRODUCTION AND SUMMARY

In the first paragraph of its NPRM, the Commission articulated its goal to "accelerate the development and deployment of Next Generation 911 (NG91l) technology that will enable the public to send emergency communications to 911 Public Safety Answering Points (PSAPs) via text, photos, videos, and data and enhance the information available to PSAPs and first responders for assessing and responding to emergencies."[2] Recognizing the "near universal availability and customer familiarity" of SMS text, the Commission asked for information

[1] Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications, Framework for Next Generation 911 Deployment, Notice of Proposed Rulemaking, 26 FCC Rcd 13615 (Sept. 22, 2011) NPRM.

[2] *Id.* at ¶ 1.

regarding the technical feasibility and cost effectiveness of an SMS text-to-911 solution.[3] The Commission also emphasized that it would rely on "detailed data that quantifies the benefits that text-to-911 and other NG911 applications will bring to the public and to emergency responders, while also quantifying the costs to providers, PSAPs, and consumers."[4]

The record now contains specific and detailed information that supports the viability of SMS text-to-911 and the potential of an SMS text deployment that meets the Commission's goal. With the research and testing conducted by Intrado and the University of Colorado, there should be no doubt that SMS text-to-911 is a reliable emergency communications method. The criticisms of SMS text-to-911 contained within the widely circulated 4G Americas white papers are not valid. In light of the technical feasibility of SMS text-to-911—and because IP Relay capability is not as available as SMS text—recommendations to adopt IP Relay as the sole wireless 911 text communications method should be rejected. The necessary changes to carrier and PSAP networks have been identified and shown to be those that can evolve into the elements of full NG911 deployment and are cost effective. Rather than impeding PSAP operations, text messaging can easily assist PSAPs in efficient call handling.

In the broader context of NG911 deployment, the Commission sought comments on potential regulatory barriers and the Commission's role in removing them. While a wide range of issues were identified in response, it is clear that the roles of federal, state, and local authorities, as well as the respective responsibilities of service providers and PSAPs need to be addressed.

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[3] *Id.* at ¶ 5.

[4] Id. at ¶ 12. ("We emphasize the importance of comments being detailed, specific, and supported by data where appropriate. We intend to confer particular weight on arguments and estimates that are supported by data or are otherwise well documented.")

II. CONCERNS OVER TECHNICAL LIMITATIONS OF SMS TEXT-TO-911 ARE NOT VALID

A number of those who filed comments opposed the use of SMS as a text-based wireless 911 solution due to the criticisms contained in the 4G Americas white papers, "Evaluation of Short-Term Interim Techniques for Multimedia Emergency Services" and "Texting to 9-1-1: Examining the Design and Limitations of SMS."[5] As Intrado indicated in its initial comments, notions about peer-to-peer text messaging cannot be used to criticize emergency text messaging. Moreover, the opinions expressed in the papers were not verified though testing. Conversely, both Intrado and the University of Colorado presented research findings substantiating the technical feasibility and reliability of SMS text-to-911. Using a 911 message center, Intrado tested 31,868 text messages to determine the number of messages lost, the number of out-of-sequence messages, the median latency, the maximum latency, and the percentage of text messages delivered within certain time frames. Ninety percent of the messages were delivered within 3-4 seconds and 99% were delivered within 3-4 seconds for stationary tests and within 7-8 seconds for mobile tests. Median latency of the total number of text messages was 2-4 seconds. The longest delivery time for any text message was 66 seconds.[6]

The 911 message center eliminates the possibility that text messages could be shed in times of congestion and negates any need for the prioritization of 911 text messages. Text messages, as well as voice calls, may encounter busy conditions in times of unusual congestion. However, the 911 message center continues trying to reach the handset at regular intervals until

[5] *See, e.g.*, Comments of Sprint Nextel Corporation, 4 (Dec. 12, 2011); Comments of T-Mobile USA, Inc., 10 (Dec. 12, 2011); Comments of Verizon and Verizon Wireless, 7 (Dec. 12 (2011); Comments of CTIA—The Wireless Association, 8 (Dec. 12, 2011).

[6] Comments of Intrado Inc. (Dec. 12, 2011), Attachment C, Testing the Reliability, Latency and Delivery Sequence of SMS Messages in a 9-1-1 Environment, 16-20.

contact is made. By doing so, 911 text messages are essentially given priority over other (peer-to-peer) SMS text messages on the carrier's network.

The research and test results presented by the University of Colorado Interdisciplinary Telecommunications Program (CU ITP) also confirmed that text messages are reliable for emergency communications. CU ITP showed that text messages and wireless voice calls were similar in terms of data loss[7] and the time it takes to make a call/send a text.[8] The researchers found that text connectivity was superior to voice calls in environments of weak signals;[9] that with GSM technology, "a wireless interface can carry 18 times as many text-to-911 sessions as voice-to-911 calls";[10] that call takers can handle multiple text messages at the same time by using automatic filters;[11] and that call takers can easily forward text messages to other PSAPs—thereby making text a more reliable communications methodology in circumstances of network congestion and PSAP overload.[12] CU ITP also validated that technology exists that can "route a string of text messages to the same PSAP and/or 911 call taker." [13]

Some commenters expressed concern that the deployment of SMS text-to-911 would require the creation of new standards, which would divert resources and attention from industry group efforts to develop an end-state NG911.[14] However, this concern is not legitimate. No

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[7] Comments of the University of Colorado, Interdisciplinary Telecommunications Program, 2 (Dec. 12, 2011).

[8] *Id.* at 3, 10-11.

[9] *Id.* at 3, 12.

[10] *Id.* at 4, 16.

[11] *Id.* at 15-17.

[12] *Id.* at 16-17.

[13] *Id.* at 14.

additional standards need to be developed in order for wireless carriers to deploy SMS text-to-911. Standards already exist to support all the functionality required by wireless carriers, including location acquisition.[15] Indeed, in its comments, AT&T Inc. presumes that Short Message Peer-to-Peer protocol (SMPP) will support connectivity from the wireless carriers to a relay center.[16] This is true whether the wireless carriers connect to a relay center or a 911 center that connects to the PSAP's network. PSAP deployment of direct text-to-911 will use the standards that have been identified in the i3 solution.[17]

Intrado's initial comments also explained that the location of the individual texting to 911 can easily be a part of any text-to-911 deployment. Cell tower location that is obtained by an Idle Mode Location Center (IMLC) and processed by a Text Positioning Center (TPC) can be used to route the call to the appropriate PSAP. This is the same information that is used for Phase I wireless voice calls. The cell tower location can be provided to the PSAP as well. X/Y coordinates may also be available on some networks and will be more ubiquitously available with LTE deployment. Intrado has successfully tested X/Y location acquisition with an IMLC. Today, if during a text communication to 911 there is an urgent need for more specific location information, a 911 call taker can always ask the texter to make a silent 911 call. This silent 911 call will be routed to the same PSAP based upon cell tower identification. The PSAP can match the text message and the voice call through the individual's mobile phone number and, thereby, obtain full Phase II E911 location information for the individual.

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[14] Comments of AT&T Inc. at 3; Comments of Sprint Nextel Corporation at 11.

[15] Intrado *Ex Parte* Presentation, 14 (Feb. 6, 2011).

[16] Comments of AT&T Inc. at 14.

[17] Intrado *Ex Parte* Presentation, FCC at 14.

Concerns over fraudulent calls or calls from non-initialized phones are misplaced.[18] The probability of fraudulent contact with 911 is greater with voice calls than it is with text messages. A voice call can be made from a phone that does not have active service, while all phones with text capability must have valid active service, providing the identity of the carrier. Intrado is not aware of any PSAP concerns with fraudulent calls in any of the existing text trials in which it is involved. Non-service initialized phones should not be required to permit text messages to be sent to 911, so associated technical issues should not be a concern for public safety.

III. IP RELAY SHOULD NOT BE ADOPTED AS THE SINGLE TEXT SOLUTION

Intrado appreciates the work of the Alliance of Telecommunications Industry Solutions' (ATIS) Interim Non-Voice Emergency Services (INES) group, but does not agree that IP Relay should be viewed as the single wireless 911 text solution. IP Relay is a valuable communication method, however, ATIS INES's recommendation that IP-Relay should be adopted as the single interim solution is predicated upon the flawed assumption that the only valuable solution is one that can be implemented by June, 2012 and does not require any changes to either wireless carriers or PSAP networks. Essentially, the ATIS INES proposal is to maintain the status quo. And whether IP-Relay is a sufficiently available solution is called into question by the fact that the service requires a smartphone, associated data plan fees and term requirements.

While organizations representing individuals with disabilities may not agree on the optimal deployment of wireless text emergency communications, it appears that many are clearly

[18] Comments identifying these concerns include: Comments of T-Mobile USA, Inc. at 11(stating that SMS has significant security vulnerabilities that could result in PSAPs being deluged with fraudulent or abusive 911 texts); Comments of CTIA at 7-8; Initial Comments Of The Texas 9-1-1 Alliance To The Notice of Proposed Rulemaking, 5-6 (Dec. 12, 2011) (stating concern over non-service initialized phones).

against IP-Relay as the single solution.[19] In the Consumer & Other Stakeholder response to the "Accompanying Statement of the Industry Members of the EAAC", the filers state, "Unless we no longer care about having an interim mobile text solution that will work wherever voice does, and that works on low cost phones for those who can only afford limited calling/text/data plans, we don't see how the solution can be implemented without SMS."[20]

Contrary to ATIS INES' claim, there should be no need for Congressional action for funding of SMS to a relay center. In fact, the Commission can and should determine that SMS is eligible for TRS funding to the same extent that IP-Relay is eligible for TRS funding.[21]

IV. INVESTMENT IN SMS TEXT-TO-911 IS AN INVESTMENT TOWARD NG911

The investment made in SMS text-to-911 deployment will not be wasted, as some suggest.[22] The functionality of the primary features of an SMS text-to-911 deployment can evolve into i3 functionality and be used for IP as well as text communications.[23] The standards used for delivery of text messages to PSAPs deploying a text solution are the same as those that will be used when an i3 ESInet is in place. PSAP equipment upgrades made to accommodate

[19] Consumer & Other Stakeholder response to the "Accompanying Statement of the Industry Members of the EAAC" that was included with the EAAC Recommendations (Dec. 23, 2011).

[20] *Id.* at 6.

[21] Intrado Comments at 18-19.

[22] *See, e.g.,* Comments of T-Mobile USA, Inc. at 13; Reply Comments of the State of Minnesota, 4-5 (February 7, 2012).

[23] Intrado Comments at 6, note 8 ("The logical elements of the 9-1-1 Short Message Service Center (SMSC), Text Positioning Center (TPC) and Text Selective Router (TSR) are depicted in the first diagram in Attachment A to illustrate the flow of SMS messages in terms that are parallel to the existing wireless voice elements, including the Mobile Positioning Center (MPC) and Selective Router (SR). These nodes are capable of mapping and evolving to the NENA i3 architecture as those are further defined in standards. As depicted in the second diagram in Attachment A, the TPC can evolve to the NENA i3 Legacy Network Gateway (LNG) and the TSR can evolve to the NENA i3 Emergency Services Routing Proxy (ESRP)").

SMS text-to-911 will be used for future NG911 services. It is important to recognize that NG911 will not be deployed in one flash cut across the nation and users will not automatically discontinue SMS as a means of communication, even after NG911 arrives. Intrado is committed to working toward full NG911 and believes that implementation of text-to-911 will facilitate, rather than derail, that effort.

V. THERE IS NO REASON TO EXPECT PSAP CONFUSION OR DIFFICULTY IN HANDLING SMS TEXTS-TO-911

The availability of SMS text-to-911 should not dramatically increase the amount of contacts to 911—only the method by which they are made. Moreover, in Black Hawk County, Iowa, which is open to all users, not just to individuals with disabilities, the volumes are low relative the number of voice calls. It is to be expected that volumes will increase with a national deployment of text-to-911 and associated public awareness; however, there is no reason to assume that PSAPs will have difficulty adapting.

Direct text-to-911 should actually provide more flexibility to call takers than they have answering voice calls because a call taker can handle voice calls and text messages simultaneously. Moreover, the efficiency and productivity of "live chat" in the context of multi-channel commercial customer service provides a good indication of the positive impact text messaging could have to PSAP call taking and response. Internet chat software was initially introduced to the market in 1980 with the CB Simulator by CompuServe.[24] Internet based chat applications have evolved over time, and with the advent of broadband technologies have become consistently utilized by customer service departments of major consumer-facing corporations. In addition, live chat software has been implemented in several call center settings

[24] *About CompuServe, CompuServe*, http://webcenters.netscape.compuserve.com/menu/about.jsp (last visited Feb. 8, 2012).

focused on support and help-desk situations.[25] Companies have reported that this method of customer interaction has a significant impact on improving employee productivity.[26]

Studies conducted by live chat software providers have shown that agents can take two chats simultaneously from their first day of experience, and quickly progress to between three and six simultaneous chats, depending on the nature of the conversation.[27] Live chat software allows for the capacity to issue canned responses to certain requests from the individual initiating the chat.[28] It also allows managers to send incoming chats to the appropriate operator based on workload and appropriate skills.[29] In deciding which agent to send the incoming chat to, the algorithm takes into account the number of current chat sessions, the frequency of messages received from the visitor, and the maximum number of chats an agent can take.[30] A different variation of live chat software routes incoming chats based on operator language ability, training level, and availability only after the chat software has identified the incoming chat as one that requires the assistance of a live operator.[31]

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[25] *Call Center Live Chat Software, WhosOn*, http://www.whoson.com/call-center-live-chat.aspx

[26] *Id.*

[27] *Id.*

[28] *Id.*

[29] http://www.whoson.com/call-center-live-chat.aspx

[30] *Id.*

[31] *How WG Live Chat Software 1.0 Has Changed the Way Webgreeter Works,* http://www.wglivechatsoftware.com/casestudy.aspx

CU ITP commented that natural language processing techniques exist that can automatically extract information, cluster texts related to the same event and sort to determine to which call taker to send texts.[32]

These capabilities can be deployed for use in managing emergency text messages. If similar software is used by public safety, in instances where multiple texts are sent identifying the same event (for example a car accident on the highway) a canned message can be sent to notify the caller that the event has been reported and to reply only if the texter has additional information. Text messages that are deemed to be non life-threatening could be assigned to a single call taker in order to free up other call takers for more critical communications. In instances of usual traffic congestion, messages can easily be forwarded to a different call taker or even to other PSAPs, and the entire previous dialog will be transferred with the call.

VI. REGULATORY ISSUES RELATED TO NG911 SHOULD BE ADDRESSED

A. Governance

Commenters raise important lingering questions regarding the nature of local, state and federal jurisdiction over NG911.[33] While these issues do not necessarily need to be addressed in conjunction with a 911 text solution, Intrado agrees that more clarity is needed as to how 911

[32] CU ITP Comments at 17 (citing call center software claims that experienced operators can handle up to 6 simultaneous sessions).

[33] *See, e.g.*, Comments of Bandwidth.com, Inc., 2 (Dec. 12, 2011) ("Specifically, Bandwidth.com recommends that the Commission implement a federal program that includes clear guidance to state and local 9-1-1 authorities as well as industry participants to achieve the most effective NG9-1-1 governing structure.); Blooston Rural Carriers, 6 (Dec. 12, 2011) ("Commission should mandate that NG911equipment acquisition and deployment issues be handled at the state, not the local level") (citations omitted); Comments of Northrop Grumman Systems Corporation, 18 (Dec. 12, 2011) ("Adequate governance is vital to developing, maintaining and evolving the rules by which PSAP engages NG9-1-1 functionality. Governance Boards and authoritative bodies that represent PSAP stakeholders and members of the communities they serve develop, promulgate and enforce the rules governing next generation functionality.")

will be governed in the future. Today, 911 and E911 service is governed by multiple authorities with some potentially overlapping lines of responsibility. With the advent of NG911 and the convergence of technologies, the lines of authority will become even murkier.

Today, state public utilities commissions have authority over access to 911 provided through legacy wireline service. The FCC has exercised jurisdiction over access to 911 provided through wireless and interconnected VoIP services. State public utility commissions exercise authority over carriers who provide 911 and E911 service to PSAPs, but whether that jurisdiction extends to NG911 services, especially IP-enabled services, is questioned by some. In Colorado, for example, this issue of the Colorado Public Utilities Commission's (CPUC) jurisdiction and authority to require cost of service pricing for IP-based NG911 services was raised when the CPUC attempted to revise its Basic Emergency Service Provider (BESP) rules and again when NextGen Communications, Inc. (NextGen) sought certification as a BESP.[34] The CPUC withdrew the majority of its proposed rule modifications, at least in part due to the controversy over the CPUC's jurisdiction, and NextGen ultimately withdrew its application, leaving many of the jurisdictional questions unaddressed.[35]

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[34] See, e.g., Initial Comments of Qwest Communications, 2, 5 (Dec. 29, 2009), Comments of Verizon and Verizon Wireless, 4 (Dec. 29, 2009), AT&T's Comments, 1-2, 12 (Dec. 29, 2009), Comments of Sprint Nextel Corporation, 1 (Jan. 11, 2010), Comments of Comcast Phone of Colorado, LLC Relating to Emergency 9-1-1 Services Rulemaking, 3-4 (Feb. 2, 2011), *In the Matter of the Proposed Changes to the Emergency 9-1-1 Services for Emergency Telecommunications Service Providers and Basic Local Exchange Carriers Rules Found in the Rules Regulating Telecommunications Providers, Service and Product, 4 Code of Colorado Regulation 723.2*, Docket No. 09R-778T (09R-778T); *see also*, NextGen Communications, Inc.'s Motion to Withdraw Application Without Prejudice and Vacate 11/15 Pre-Hearing Conference and for Waiver of Response Time (NextGen Motion to Withdraw), 1, 3, note 1(7) (filed Nov. 10, 2011), *In the Matter of the Application of NextGen Communications, Inc. for Certification as a Basic Emergency Services Provider in the State of Colorado*, Docket No. 11A-531T (11A-531T).

[35] Recommended Decision of Administrative Law Judge Dale E. Isley, Adopting Proposed Rule 2147; Declining to Adopt Changes to Proposed Rules 2130 through 21-46; and Vacating

While for wireless and VoIP providers, mandated access to 911 emanates from federal law, state and local 911 authorities are considering rules, requirements, and/or arrangements that impose specific requirements on the delivery of 911 calls to PSAPs.[36] Once Emergency Services IP Networks (ESInets) are deployed by state and/or regional authorities, new questions of authority and governance are likely to arise—especially as to the demarcation between access provider and PSAP networks and with respect to oversight of the services provided within the ESInet.[37]

The solution to the jurisdictional milieu may not be simple but needs to be addressed. The Commission should take the opportunity to clarify where it believes federal jurisdiction ends and state and/or local jurisdiction begins and to outline national guidelines with respect to issues over which it has oversight.

B. Liability Protection

Some commenters cited broader liability protection as an essential element of NG911 deployment.[38] Notably, they support liability protection that does not rely on state and local

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Hearing, 09R-778T, Decision No. R10-0429, 4-5, ¶ 12; NextGen Motion to Withdraw, 11A-531T.

[36] In Texas, the Commission on State Emergency Communications (CSEC) is considering rulemaking to establish minimum service requirements related to the provisioning of 9-1-1 VoIP calls to PSAPs in its jurisdiction. *See VoIP: Minimum Standards for 9-1-1 Service (Strawman Rule Project), www.csec.texas.gov* (last visited Feb. 5, 2012).

[37] *See* Comments of T-Mobile at 7 (stating that in a next generation environment, [T]he delineation of responsibilities between service providers and PSAPs must…be clear because, in the NG911 network there will be no selective router to form the demarcation point between the PSAP and service provider.)

[38] Comments of Verizon & Verizon Wireless at 15-16; Comments of AT&T, Inc., at 15-16, 22-23.

laws[39] and advocate federal legislation that provides ubiquitous coverage, preempting state law.[40] Intrado agrees that all parties involved in providing emergency services should receive maximum liability protection. However, the deployment of a text solution should not be delayed for the sake of obtaining more protection than exists for other communications methods today.

V. CONCLUSION

Intrado understands the importance of ensuring high quality emergency communications and does not debate the value of voice 911 calls. However, this proceeding is not about which is better, voice or text, or even whether they are currently equal in every respect. Similar reticence was expressed with the advent of wireless voice calls to 911 (which had far more serious reliability, standards and cost issues, particularly in early deployment), but luckily the carrier and public safety communities adapted to what was then an emerging technology. While SMS will eventually be one of many text technologies used to reach 911, there is significant public benefit in immediately implementing an SMS text-to-911 solution. Intrado strongly supports a staged approach that begins with a relay center as the first step. However, there is no reason for deployment to end there. Intrado urges the industry, the public safety community and the Commission to consider how these initial efforts can quickly transition to the most efficient and economic solution—a direct text-to-911 solution that puts the nation on a path to full NG911.

[39] Verizon Comments at 15-16; AT&T Comments at 22-23.

[40] AT&T Comments at 22-23.

Respectfully submitted,

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